*BY ORDER OF THE COMMANDER*
*AIR FORCE SPACE COMMAND*


*AIR FORCE SPACE COMMAND*
*INSTRUCTION 32-1005*

*2 DECEMBER 1997*

*Civil Engineering*

# *INTERCONTINENTAL BALLISTIC MISSILE (ICBM) REAL PROPERTY/REAL PROPERTY INSTALLED EQUIPMENT RESPONSIBILITIES*

---

**NOTICE:** This publication is available digitally on the AFSPC WWW site at: http://midway.spacecom.af.mil/pubs. If you lack access, contact your Publishing Distribution Office (PDO).

---

OPR: CEF/CEO (Richard Coder)
Certified by: CEF/CC (Col Terrance G. Mykes)
Supersedes AFSPCI32-1005, 3 November 1997.
Pages: 37
Distribution: F

---

This instruction implements AFPD32-10, Installation and Facilities. It describes the requirements for all organizations responsible for operating, maintaining, repairing, constructing and altering ICBM Real Property and Real Property Installed Equipment (RP/RPIE). This instruction interfaces with AFIs in the 21 (Maintenance), 32 (Civil Engineering) and 91 (Safety) series publications. Additional instructions that relate to this instruction are included in the reference section of this document. This instruction applies to AFSPC Civil Engineering Squadrons with Missile Engineering support personnel, operational, test and training ICBM units. This instruction also applies to non-AFSPC Civil Engineering Squadrons with Missile Engineering support personnel and supporting activities in accordance with the HQ AFSPC, HQ ACC, and HQ AMC Memorandum of Agreement (MOA), Civil Engineering Real Property/Real Property Installed Equipment (RP/RPIE) Responsibilities at ICBM Facilities, August 1994. This instruction Does Not apply to the Air Force Reserve Command or Air National Guard. ACCR85-1 can no longer be used for AFSPC guidance.

## *SUMMARY OF REVISIONS*

The revision of this publication is to meet the format standards required by Air Force. No content material has changed. Some required format changes have been made to allow for the conversion process.

## Chapter 1

## MISSION

**1.1. Responsibilities and General Information:**

1.1.1. Headquarters (HQs), Numbered Air Forces (NAFs), Space Wings (SW)/Space Groups (SG), and Base Civil Engineers (BCEs) collocated with SWs/SGs manage Intermediate and Organizational (I&O) level maintenance in accordance with (IAW) Air Force standards.

1.1.2. Air Force Space Command Civil Engineer Flight (AFSPC CEF), applicable BCEs, Missile Engineering Flights (MEF), Operations Flights and MW/MG Maintenance are responsible for configuration control, depot level maintenance, engineering, modifications, hardness assurance, engineering support, technical surveillance, and guidance to maintenance in support of the weapon system.

1.1.3. Civil Engineer Squadron (CES) supporting Intercontinental Ballistic Missiles (ICBMs) assigned to other commands receive systems engineering support IAW this instruction.

1.1.4. Individual commands fund facility projects IAW command to command agreements.

1.1.5. The Missile Facility Alteration Panel (MFAP) approves ICBM Real Property/Real Property Installed Equipment (RP/RPIE) modifications. AFSPC CEF will fund and provide engineering support necessary to engineer, plan, manage, implement, and execute ICBM RP/RPIE requirements. Resolve difficulties affecting operation, maintenance, system modification, RPIE parts or civil engineering manuals with AFSPC CEF.

**1.2. Recommended Changes.** Submit instruction changes to AFSPC CEF, 1520 E. Willamette Ave., Colorado Springs, CO 80909-4554.

## Chapter 2

## BASE CIVIL ENGINEERING

### 2.1. Responsibilities:

2.1.1. Ensure personnel assigned for missile maintenance support are used for this purpose on a priority basis prior to performing other work.

2.1.2. Work closely with missile wing/group commander to resolve significant problems.

2.1.3. Provide flood/snow control resources to support the missile weapon system.

2.1.4. Certify an adequate number of welders IAW AFI21-105 (Qualification of Welders) and MIL-S-1595A (Test, Aircraft, and Missile Welding Operators Qualification) to maintain equipment.

2.1.5. Maintain missile site structures and grounds not related to hardness, survivability, sustainability, nuclear surety, and launch IAW AFI32-1031 (Operations Management).

2.1.6. Ensure Missile Alert Facility (MAF) utilities are properly permitted for operation IAW State and Federal regulations.

2.1.7. Provide nontechnical training for personnel supporting missile wings/groups as determined locally.

2.1.8. Maintain on-base routes and Air Force owned missile access roads and inspect roads to substantiate claims.

2.1.9. Maintain Hardened Intersite Cabling System (HICS) right of ways.

2.1.10. Repair and replace fences and gates, correct right-of-way erosion, and maintain missile facility topography to prevent flood damage.

## Chapter 3

## BASE MISSILE ENGINEERING FLIGHT

**3.1. Responsibilities.** Provide depot level maintenance support and assist in resolving missile operation and maintenance problems.

**3.1.1. Chief, Missile Engineering:**

3.1.1.1. Approves AFSPC Form 286, Facility Change Initiation Requests (FCIR), AFSPC Form 287, Facility Engineering Analysis Test (FEAT) Request and AFSPC Form 272 RPIE Improvement Reports. Assigns control numbers to AFSPC Form 272 and coordinates all blocks with appropriate agencies. The Missile Engineer is the final approving authority on the AFSPC Form 272 and forwards it to AFSPC CEF within 30 days of submittal.

3.1.1.2. Maintains a control log of all FCIR modifications in work or pending (e.g. Facility Engineering Analysis Tests (FEATs), Master Change Logs (MCLs), local projects, etc.), scheduling actions and assigning control numbers.

3.1.1.3. Submit MCL completion packages to AFSPC CEF.

3.1.1.4. Reviews, evaluates, and initiates suggestions requiring Central Engineering Control (CEC) action and forwards to AFSPC CEF.

3.1.1.5. Monitors missile additive function to ensure equipment and facilities are maintained IAW Air Force Instructions (AFI), CEMs, weapon system criteria and configuration control, hardness and nuclear surety requirements.

3.1.1.6. Manages engineering designs for local projects/contracts and supports special projects as directed by AFSPC CEF.

3.1.1.7. Ensures Worldwide Information Management System (WIMS) Project by Contract Management System (PCMS) files are up to date.

3.1.1.8. Provides consulting and problem solving service for all agencies performing ICBM life extension work.

3.1.1.9. Investigates and takes action in areas causing delay in the performance of MCLs including all material acquisition actions.

3.1.1.10. Assists in developing and reviewing management plans outlined in this instruction.

3.1.1.11. Establishes and maintains a master CEM library.

3.1.1.12. Performs acceptance inspections of modifications and equipment updates IAW AFI21-105 (Qualifications of Welders).

3.1.1.13. Approves, develops, and distributes local CEM interim technical data changes.

3.1.1.14. Verifies modifications for accuracy and applicability.

3.1.1.15. Approves all requests to weld in ICBM facilities IAW TO 21M-LGM30F-12 (Safety Manual, Special Maint Safety and Electromagnetic Interference Provision VAFB and all Wings).

3.1.1.16. Notifies power companies of power outages occurring at missile alert facilities (MAFs) and launch facilities (LFs) and works with missile wing/missile group job control officer to restore commercial power.

3.1.1.17. Reviews the Time Compliance Technical Order (TCTO)/MCL status report and reports any discrepancies to missile wing/group plans section.

3.1.1.18. Observes five-year elevator inspections and, on a random basis, observes elevator hoisting, governor, and traveling cable repair and/or replacement.

3.1.1.19. Resolves material deficiency reports against equipment.

3.1.1.20. Identifies and authorizes equipment or parts substitutions.

3.1.1.21. Assists AFSPC CEF with data collection to develop Master Change Logs (MCLs).

3.1.1.22. Reviews and coordinates the SW/SG flood control plan.

3.1.1.23. Supervises the Construction, Surveillance and Inspection (CSI) program.

3.1.1.24. Investigates and determines required corrective actions for missile road discrepancies.

3.1.1.25. Provides annual missile road funding requirements, including estimates for extraordinary maintenance (EM) and extraordinary snow removal (ESR) to AFSPC CEF/CEO (Operations) for incorporation into the AFSPC budget request. Projects missile road repair requirements for the following three fiscal years:

3.1.1.25.1. Coordinates the yearly EM and ESR projections with the Federal Highway Administration (FHWA) Division Office. The FHWA provides supplemental expertise regarding conditions of roads.

3.1.1.25.2. Documents and forwards deficiencies qualifying for Air Force Funding assistance to AFSPC CEF/CEO by 15 July. Include location (illustrate on a map), current condition (e.g. regrading required, poor surface/roadbed condition, drainage problems, ect.), cost estimates and comments justifying the requirements and attach letter from the FHWA Division Office concurring with Air Force findings.

3.1.1.25.3. Processes and forwards to AFSPC CEF/CEO projects that do not qualify as maintenance work (e.g., upgrade of roads for incorporation into the missile transporter route system) through an Access Road Needs Report.

3.1.1.26. Selects alternate missile routes and notifies appropriate agencies whenever primary roads become impassable or unsafe:

3.1.1.26.1. Initiates EM requests if no alternate routes are available and the local agencies will not have the corrective action completed within an acceptable time frame

3.1.1.26.2. Considers Transporter Erector (TE) route changes if alternate routes are required in the place of designated routes

3.1.1.27. Directs the FHWA to disburse funds for EM and ESR. (Does not apply to VAFB). ***NOTE:*** Each year the Air Force transfers a specific amount of money to the FHWA for maintenance of the TE/Missile Transporter route system. A portion of these funds are specifically identified for operational emergencies (e.g. EM and ESR).

3.1.1.28. Evaluates proposed TE route changes in coordination with the FHWA Division Office, State highway department and the applicable county officials.

3.1.1.29. Evaluates grounds maintenance requirements and seasonal maintenance programs at LFs and MAFs.

### 3.1.2. Chief, Contract Surveillance and Inspection (CSI).

3.1.2.1. Monitors all life extension contracts performed on MAFs and LFs and reports discrepancies to the Missile Engineer.

3.1.2.2. Maintains an adequate number of trained and qualified inspectors to meet the needs of the contract effort.

3.1.2.3. Performs inspection, escort, and acceptance functions for contracts performed on missile facilities. Completes an AF Form 1477, Construction Inspection Record, each day of work during the contract period.

## 3.2. Modification Management:

### 3.2.1. Central Engineering Control (CEC) for ICBM Facility Modifications:

3.2.1.1. Proposed modifications to RP/RPIE are subject to command level CEC when such modifications affect the operation of ICBM Support Equipment (SE), impact weapon system safety, survivability, or vulnerability, interface with below ground security systems, or modify essential utility service to underground portions of the missile facilities.

3.2.1.2. As-built drawings must be updated and forwarded to AFSPC CEF on all projects.

3.2.1.3. Request assistance from AFSPC CEF in determining if CEC is required for a proposed modification.

3.2.1.4. Submit proposed modifications requiring CEC to AFSPC CEF.

### 3.2.2. Equipment/Component Substitutes:

3.2.2.1. The missile engineer identifies the substitution of functionally identical equipment or components regardless of manufacturer or model designation. Suitable substitutes must meet design specifications, tolerances and satisfy original form, fit, function and hardness criteria. AFSPC is the final approval authority for equipment/component substitutes and determines compliance with hardness criteria. Items identified by the missile engineer may be temporarily installed and used/operated with Advanced Data Package (ADP) authorization until the applicable CEMs are changed. Disapproved temporarily installed equipment/components will be removed and AFSPC CEF will develop a suitable substitute or recommendation.

3.2.2.2. The SW/SG or BCE material control requests substitute actions to missile engineering by letter and forwards an information copy to AFSPC CEF. Requests may be made by telephone but must be followed up with a letter within three working days. The flight letter, coupled with a manufacture's brochure, will be considered an ADP to authorize interim use of the suitable substitute part. Prepare an AFSPC Form 272 identifying the substitute part and forward within 30 days of installation.

### 3.2.3. Advanced Data Packages (ADP):

3.2.3.1. Base missile engineers authorize and control use of ADPs intended for use by the technical engineering flight and technicians that are qualified on the original equipment.

3.2.3.2. Only AFSPC CEF or the missile engineering flight can issue or authorize an ADP change.

3.2.3.3. Review and file ADPs.

3.2.3.4. Forward a copy of each locally generated ADP to AFSPC CEF.

**3.2.4. Facility Change Initiation Request (FCIR):**

3.2.4.1. Review FCIRs for applicability, safety compliance, hardness, environmental impact, technical accuracy, and compatibility with other Space wing(s)/group(s). Immediate FCIRs, which could result in personnel injury or damage to equipment, will be processed within 24 hours.

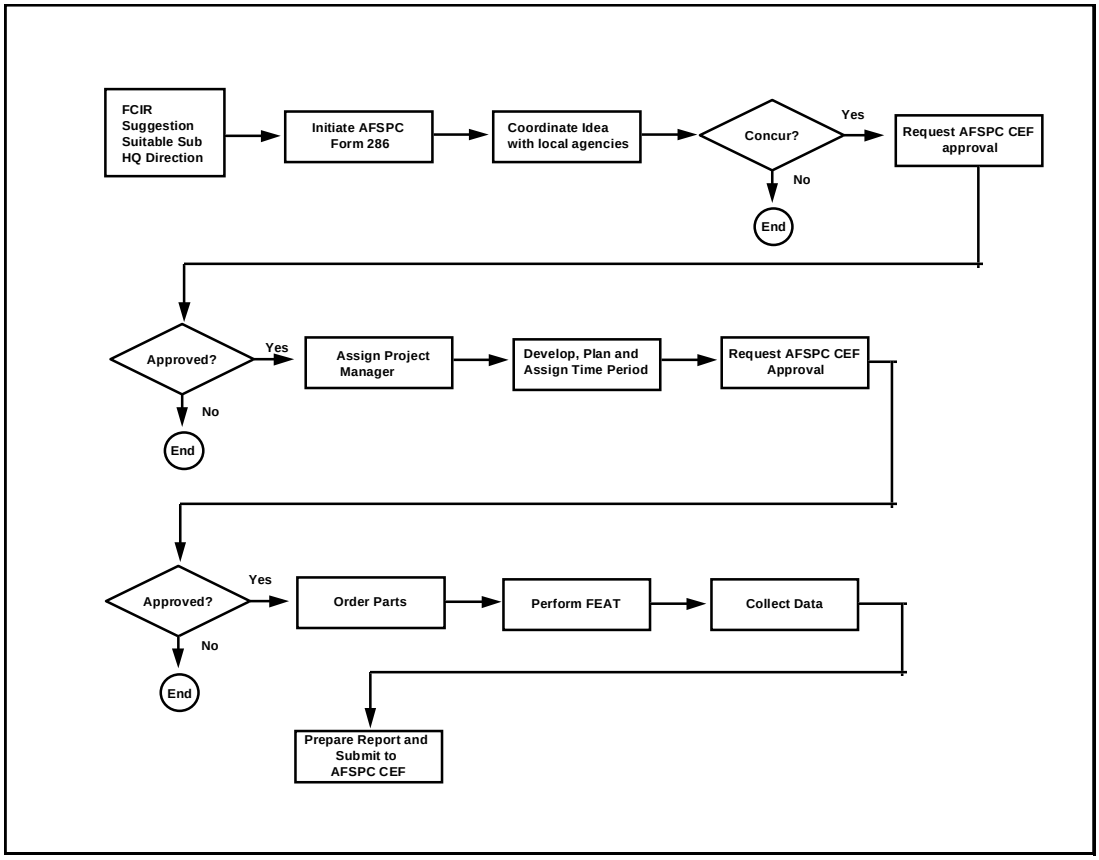
3.2.4.2. Coordinate, document and file FCIRs.

3.2.4.3. Maintain a perpetual FCIR disposition log.

3.2.4.4. Review and respond to FCIRs received from AFSPC CEF.

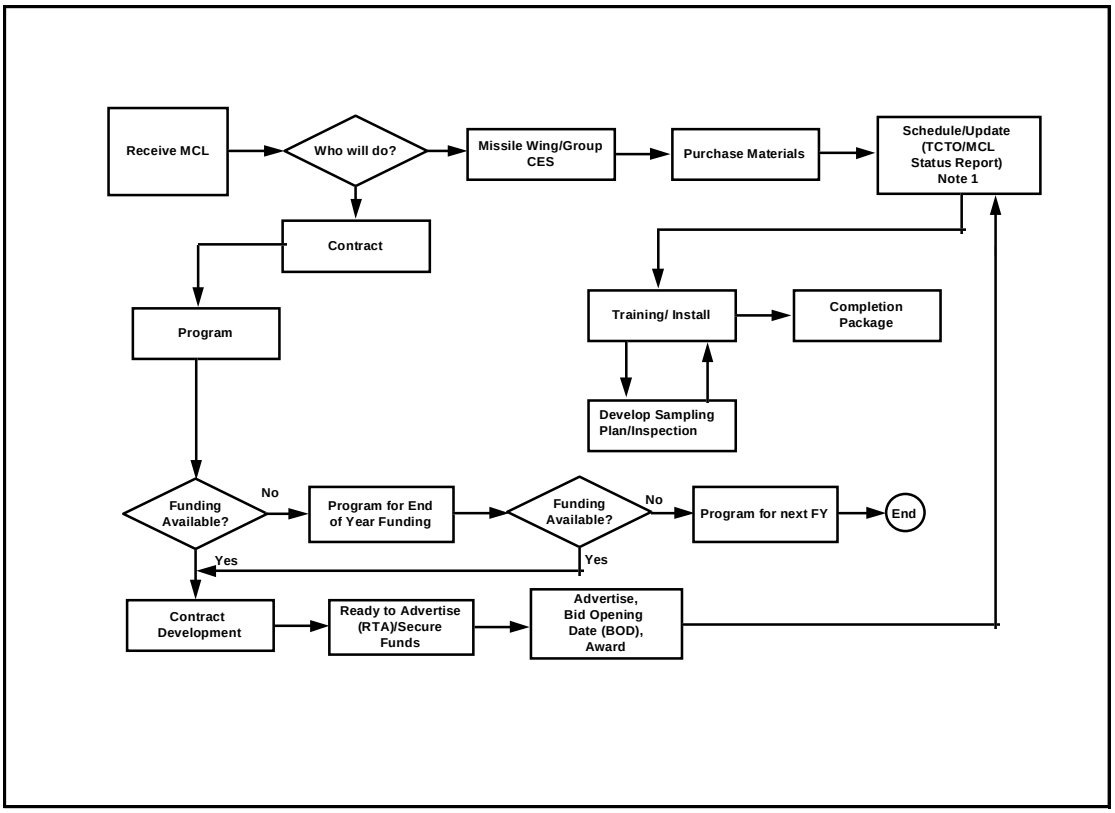
**3.2.5. Facility Engineering Analysis Test (FEAT).** Accomplish FEATs IAW **Figure 3.1.**, FEAT Process Flow Chart.

**Figure 3.1. FEAT Process Flow Chart.**




**3.2.6. Master Change Log (MCL).** Accomplish MCLs IAW **Figure 3.2.**, MCL Process Flow Chart.

**Figure 3.2. MCL Process Flow Chart.**



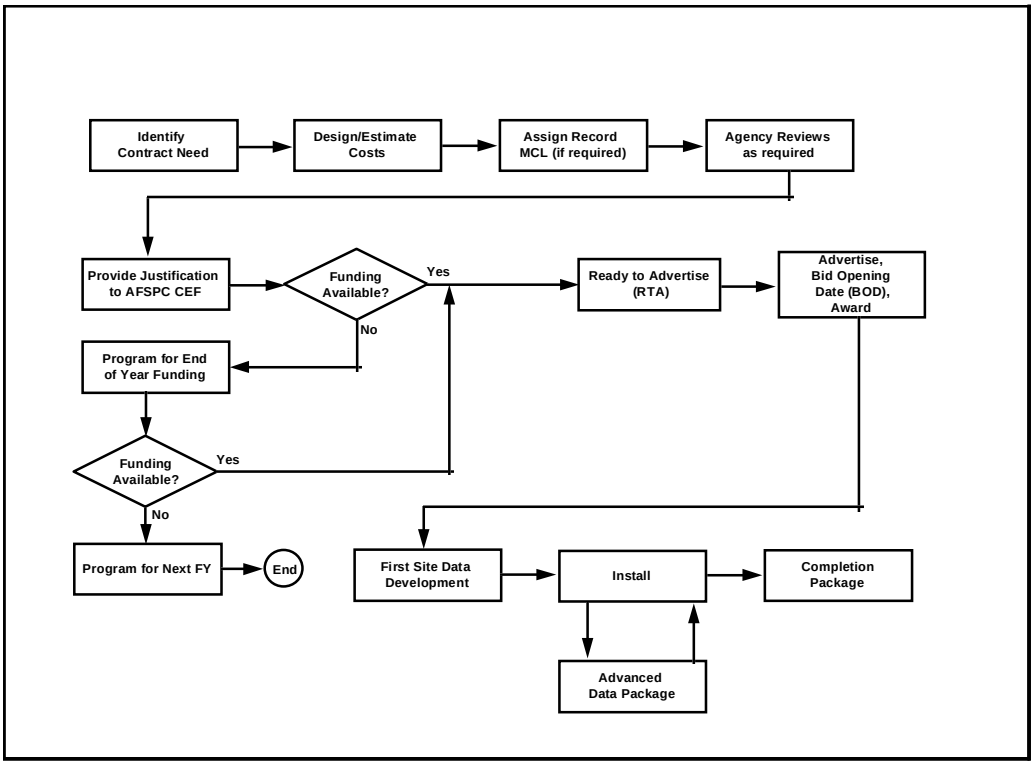

***NOTE:***

For CEM MCLs and record CEM MCLs, notify missile scheduling or the data management flight to load the MCL information in the TCTO portion of the Expanded Missile Data Analysis System (EMDAS)/ Improved Maintenance Management Program (IMMP) system and ensure an EMDAS/IMMP Configuration, Failure and Repair (CFAR) record is initiated for each site affected by the MCL.

**3.2.7. MCLs Performed by Contract.** Accomplish MCLs Performed by Contract IAW **Figure 3.3.**, Contract Process Flow Chart.

**3.2.8. Contracts.** Accomplish RP/RPIE contract work IAW **Figure 3.3.**, Contract Process Flow Chart.

**Figure 3.3. Contract Process Flow Chart.**




### 3.2.9. MCL Completion Package Preparation:

3.2.9.1. Identify technical data deficiencies to AFSPC CEF (A single completion package may be used for all the MCLs in a contract) upon completion of the first site.

3.2.9.2. Upon completion of the last site, submit final completion package 30 days prior to the rescission date for MCLs requiring only a single completion package and 60 to 120 days after each site completion when a package is required for each site. Include the following in completion packages:

3.2.9.2.1. Date final site was completed.

3.2.9.2.2. Reproducible as-built drawings.

3.2.9.2.3. Shop drawings, if any.

3.2.9.2.4. Control numbers for all AFSPC Forms initiated and technical data affected and dates sent to AFSPC CEF.

3.2.9.2.5. Any engineering data and/or findings that were used in the accomplishment of the MCL.

3.2.9.2.6. One original set of vendor's/manufacturer's brochures.

3.2.9.3. Notify AFSPC CEF of any delays in processing the completion package and, if required, request an extension to the recession date from AFSPC CEF.

## 3.3. Logs and Records:

3.3.1. Missile Site Power Generation Logs and Historical Records.

3.3.1.1. The shop responsible for power generation unit maintenance prepares an AF Form 719, Historical Record Diesel Electric Generator and System or computer generated product as a permanent record for each unit.

3.3.1.2. Record all crankcase lube oil and filter changes, the date of the change, and engine clock run time (hours).

3.3.1.3. Record all major mechanical and electrical part replacements including overhauls and other depot level maintenance.

3.3.1.4. Record cost data on forms maintained by units other than the missile wing.

3.3.1.5. Removed power units will have an AF Form 719 (or computer printout) attached to the unit for historical reference.

3.3.1.6. Record hour meter readings of the last oil change on the AF Form 719. Compare stop hour meter reading from the last diesel run. If more than 200 hours have accumulated since the last lube oil and filter element change, change oil and filter.

## 3.4. Suggestions and Deficiency Reports:

### 3.4.1. Suggestion Processing Procedures:

3.4.1.1. The local program administrator forwards suggestions to the BCE monitor.

3.4.1.2. The missile engineering flight fills out an AF Form 1000-1, Suggestion and Evaluation and Transmittal for all suggestions. The completed suggestion package approved for installation level use will be forwarded to the organization manager.

3.4.1.3. Initiate implementing action for suggestions that change local operating or maintenance practices not covered by CEMs and require base level approval authority. Hold suggestions until local implementing action is complete, then complete an AF Form 1000-1 indicating mandatory implementation on a local basis with the authority for adoption.

3.4.1.4. Process suggestions requiring a CEM change or a modification as a separate document action IAW AFI38-401 (The Air Force Suggestion Program). Adequately cross-reference suggestion and separate documentation.

3.4.1.5. The local program administrator forwards suggestions which may be implemented at like units to 21 SW/MOQS for forwarding to HQ AFSPC/CE for further evaluation. Address AF Form 1000-1 to HQ AFSPC/CE/Stop 4150.

## Chapter 4

## OPERATIONS FLIGHT

**4.1. Responsibilities.** The Chief, Operations Flight ensures the effective use of available personnel to complete missile work orders and ensures all assigned missile coded personnel have proper clearance and training to dispatch to LFs and MAFs.

**4.1.1. Operations Flight Chief:**

4.1.1.1. Ensures missile maintenance is performed IAW this instruction, CEM 21-SM80-6 (Inspection Requirements), and CEM 21-SM80 -18 (Maintenance Support Plan (RPIE)).

4.1.1.2. Supports the facility manager program.

4.1.1.3. Ensures assigned personnel understand and comply with weapon system safety rules.

4.1.1.4. Reviews requests for depot maintenance assistance and prepares appropriate recommendations to the SW/SG.

4.1.1.5. Maintains adequate and updated technical data.

4.1.1.6. Initiates all requests for welding approval and ensures welding operations are conducted IAW TO 21M-LGM30F-12.

4.1.1.7. Attends SW/SG scheduling and status review meetings.

4.1.1.8. Informs missile engineering of equipment problems associated with maintenance priority 1 - 4 discrepancies.

4.1.1.9. Ensures welders complete all specified nontechnical training requirements in **Table 4.1.** prior to performing welding tasks at missile facilities.

4.1.1.10. Monitors missile scheduling activities and resolves scheduling and supply problems.

**4.1.2. Timeline Restrictions:**

4.1.2.1. Military personnel, who dispatch to the missile field, comply with timeline restrictions outlined in AFSPCI21-102, ICBM Maintenance Management, Chapter 1.

4.1.2.2. Civilian personnel comply with timeline restrictions outlined in AFI36-807 (Weekly and Daily Scheduling of Work and Holiday Observances).

**4.1.3. Supervisor Training Responsibilities and Procedures:**

4.1.3.1. Conduct training program IAW AFI36-2201 (Enlisted Specialty Training) and insure personnel dispatching to MAFs and LFs receive the required nontechnical training IAW **Table 4.1.**

4.1.3.2. Document training IAW local procedures.

**4.1.4. Production Inspections:**

4.1.4.1. Maintain a current production inspector listing in each affected work center.

4.1.4.2. Conduct inspections with designated production inspectors to clear red “X” and red “W” discrepancies.

#### 4.1.5. Water and Waste Supervisor:

4.1.5.1. Maintain, review and analyze the Minuteman water utility operator logs.

4.1.5.2. Investigate and correct water utility deviations.

4.1.5.3. Maintain a copy of the water log and any analysis in a historical file.

4.1.5.4. Maintain proper state permits for the LF dewatering systems and the MAFs.

### 4.2. Resource Management:

#### 4.2.1. Manpower:

4.2.1.1. Missile additives are provided to the BCE to support missile generated work requirements and are identified on manning documents in the Functional Code (FC) 442001 and 4434XX.

4.2.1.2. Submit permanent manpower change requests to the local Manpower Office (MO) and provide information copies to AFSPC CEF.

### 4.3. Funding/Programming:

#### 4.3.1. General:

4.3.1.1. HQ AFSPC/CEV (Environmental) will consolidate and fund missile related environmental requirements.

4.3.1.2. HQ AFSPC/CEPF (Funds Management) reviews all contract requests for life extension funding.

4.3.1.3. HQ AFSPC/CEPF (Funds Management) will reserve facility project funding in the 11213 PE (Program Element) set aside for life extension contracts.

4.3.1.4. AFSPC CEF/CEO (Civil Engineering Flight/Operations) advocates and plans for RP/RPIE life extension funding.

#### 4.3.2. BCE Missile Support Funds:

4.3.2.1. AFSPC provides the BCEs with 11213 PE annual funding to support intermediate, organizational and depot level modifications at missile facilities.

4.3.2.2. Supplies used in support of modifications shall be cost coded for bench stock and MCL/FEAT supplies.

4.3.2.3. Life extension projects will be programmed, prioritized, and funded by AFSPC CEF.

4.3.2.4. Projects at ICBM facilities requiring construction, surveillance, inspection (CSI) will be funded by AFSPC CEF.

4.3.2.5. Provides travel expenses to maintain/repair equipment

#### 4.3.3. Labor Reporting and Cost Accounting.

4.3.3.1. Personnel assigned to Actual Time Accounting (ATA) cost centers will report direct and indirect time on the automated AF Form 1734, BCE Daily Work Schedule.

4.3.3.2. Establish Work Order Master File (WOMF) records for missile support by separate installation code for LF or MAF.

4.3.3.3. Establish a separate Work Order (WO) for each MCL/FEAT.

**4.3.4. Maintenance, Repair and Minor Construction.** In the Project by Contract Management System, identify missile life extension facility contract projects with 6000 series project number and code as missile-life-extension (MLE) in Base Code 3.

## 4.4. Missile Work Control:

### 4.4.1. Missile scheduling Responsibilities:

4.4.1.1. Ensures all maintenance requests are scheduled.

4.4.1.2. Ensure due in from maintenance (DIFM) and requests for missile support maintenance are received by missile scheduling.

4.4.1.3. Combine priority 7 work orders with higher priority maintenance.

4.4.1.4. Build EMDAS/IMMP work packages for all known work requirements, ensuring a full day's work.

4.4.1.5. Prepare work authorization documents for Base Civil Engineering (BCE) missile support work.

4.4.1.6. Coordinate with the Space Wing (SW)/Space Group (SG) to ensure optimum planning, scheduling, and parts ordering.

4.4.1.7. Ensure qualified personnel are available for emergency dispatch 24 hours a day.

4.4.1.8. Schedule Civil Engineering (CE) personnel to dispatch and work BCE discrepancies with the MW/MG Periodic Maintenance Team (PMT).

4.4.1.9. Maintain reference documents to plan, schedule, and document equipment inspection, maintenance or repair.

4.4.1.10. Provide IWP inputs to the Chief of Operations.

4.4.1.11. Report all BCE discrepancies with a maintenance priority of 1-4 to SW/SG Job Control as soon as possible.

4.4.1.12. Minimize travel time for multiple site dispatches.

### 4.4.2. EMDAS/IMMP Operation:

4.4.2.1. Use EMDAS/IMMP to schedule maintenance and process work order requests unless an alternate procedure is approved by AFSPC CEF.

4.4.2.2. Use TO 33D9-61-76-1 (Expanded Missile Data Analysis System) to operate the EMDAS/IMMP. Contact missile wing/group maintenance data section for assistance when problems occur with EMDAS/IMMP operation.

4.4.2.3. Use EMDAS/IMMP to identify, schedule, track, and complete all work orders to include CEM 21-SM80-6 inspections and to complete briefing/debriefing actions.

4.4.2.4. Obtain delayed discrepancy listings to schedule and control work requirements and provide a copy to affected shops and missile engineering.

**4.4.3. Maintenance Files:**

4.4.3.1. Generate an EMDAS/IMMP work order for one-time BCE assistance.

4.4.3.2. Document all modification work in EMDAS/IMMP IAW TO 00-20-2-5.

4.4.3.3. Document EMDAS/IMMP work orders for codeable RPIE or higher assembly work in the applicable CEM.

4.4.3.4. Document noncodeable RPIE, missile field maintenance and in-shop missile maintenance support IAW local directives.

4.4.3.5. Assign maintenance priorities to all work requirements IAW AFSPCI21-102.

4.4.3.6. Prepare EMDAS/IMMP work orders IAW 00-20 technical orders, AFSPCI21-102, AFI21-114 (Managing Intercontinental Ballistic Missiles Maintenance) and TO 33D9-61-76-1.

**4.4.4. Maintenance File Reconciliation:**

4.4.4.1. Conduct a monthly reconciliation of the discrepancy file listing.

4.4.4.2. Reconcile MAF discrepancies with the maintenance discrepancy file or EMDAS/IMMP listings with missile scheduling, FM and MCC.

4.4.4.3. Reconcile assist request work orders with the MS/SG.

4.4.4.4. Reconcile security discrepancies with SW/SG security control.

4.4.4.5. Reconcile maintenance requirements awaiting parts (DDP and AWP) with BCE material control.

4.4.4.6. Reconcile repairables with missile scheduling and DIFM monitor.

**4.4.5. Scheduling Procedures:**

4.4.5.1. Determine if an immediate dispatch is required upon receipt of a priority 1-4 work requirement of an emergency nature. *Note:* The Periodic Maintenance Program is a major planning factor for all maintenance activities. The underlying concept for the program is to prevent higher priority dispatches by "fine tuning" LF and MAF systems and then leaving them alone unless a significant failure occurs (priority 1-4). The critical elements of this program are careful, long-range planning and strict adherence to established periodic maintenance schedules. Close coordination with the MW/MG scheduling control flight is essential to ensure BCE support of this program.

4.4.5.2. Consolidate priority 5 and 6 work requirements of a support nature with prepared schedules where possible.

4.4.5.3. Dispatch, (if resources permit) when sufficient priority 7 work orders exist.

4.4.5.4. Build an EMDAS/IMMP work package for each team dispatching to the missile field, to include a current discrepancy list for each site to be visited and work order for each job.

4.4.5.5. Control and document cannibalizations IAW TO 00-20-2 (The Maintenance Data Collection System).

**4.4.6. Maintenance Forecasts and Schedules:**

4.4.6.1. Provide inputs to SW/SG plans and scheduling flight.

4.4.6.2. Provide long range forecast to SW/SG plans section.

4.4.6.3. Attend the weekly scheduling meeting to coordinate missile work requirements, including those items identified by the long range forecast.

4.4.6.4. Provide copies of the weekly schedule to SW/SG maintenance plans section.

4.4.6.5. Annotate deviations to the schedule for re-accomplishment at a later date.

4.4.6.6. Obtain copies of the SW/SG maintenance forecasts.

**4.4.7. Personnel Dispatch:**

4.4.7.1. Missile scheduling prepares AF Form 1734 for Actual time Accounting (ATA) cost centers, as required.

4.4.7.2. Contact missile scheduling upon completion of assigned tasks.

4.4.7.3. Comply with SW/SG procedures during an ORI/LORI.

4.4.7.4. Brief/Debrief with MW/MG Maintenance Control and MCCs as required. The BCE task supervisor will complete the forms in the work package clearing corrected and invalid discrepancies.

4.4.7.5. The missile scheduler provides one copy of the EMDAS/IMMP work package to the shop supervisor prior to dispatch.

4.4.7.6. Return completed EMDAS/IMMP work packages to the missile scheduler.

4.4.7.7. Process an AF Form 327 (Non-WIMS Bases) Base Civil Engineer Work Order, IAW AFI32-1031 (Operations Management) when the work is completed.

**4.4.8. Welding:**

4.4.8.1. The BCE is responsible for the safe accomplishment of welding tasks IAW TO 21M-LGM30F-12 to include atmospheric testing.

4.4.8.2. BCE missile scheduling and SW/SG maintenance scheduling will jointly decide on a time and date to complete welding work orders.

**4.5. Base Level Supply Support (BCE Material Control):**

**4.5.1. Responsibilities:**

4.5.1.1. Manages and maintains weapon system oriented supply requests.

4.5.1.2. Obtains repaired parts and supplies.

4.5.1.3. Processes reparable assets.

4.5.1.4. Budgets for supplies and equipment.

4.5.1.5. Provides an interface between the BCE complex, base supply, and missile wing material control.

4.5.1.6. Notifies SW/SG Maintenance Control when work stoppages are projected or detected.

4.5.1.7. Prepares budget inputs for weapon systems parts supplies and life extension work (including MCLs).

**4.5.2. Material Requests:**

4.5.2.1. BCE material control requests all supplies necessary to complete work orders accomplished by BCE organizations IAW AFMAN23-110 (USAF Supply Manual) and AFI32-1031.

4.5.2.2. SW/SG material control requests supplies when BCE personnel assist the MW/MG.

**4.5.3. DIFM Monitor (BCE Material Control).**

4.5.3.1. Manage the due-in-from maintenance (DIFM ) and maintenance turnaround (TRN) programs as outlined in AFMAN23-110.

4.5.3.2. Processes all repairable projects.

4.5.3.3. Establishes clearly marked serviceable and measurable equipment holding areas.

4.5.3.4. Process unserviceable assets generated by either BCE or MW/MG (when a MW/MG repair capability does not exist or IAW CEM 21-SM80-18) through BCE material control.

4.5.3.5. Obtain a current copy of the MW RPIE D-23, Daily Repair Cycle Asset management Listing and reconcile with all applicable agencies. Conduct a monthly reconciliation with the missile scheduler.

4.5.3.6. Ensure repairable items delivered to BCE material control for repair have an AFTO Form 350 (Repairable Item Processing Tag) attached. Notify missile scheduling when an item is received for repair.

4.5.3.7. Notify missile scheduling when an asset ordered by BCE and received from base supply is available for scheduling.

4.5.3.8. Process repairable items to the applicable shop/zone within two workdays of receipt by material control using an EMDAS/IMMP work order.

4.5.3.9. Return work packages to missile scheduling upon completion of bench check by the shop/zone. Attach AF Form 1445 (Materials and Equipment List) to repairable items requiring parts.

4.5.3.10. Process repaired or condemned items IAW with establish local procedures.

4.5.3.11. Process DIFM items and update documentation as required.

**4.5.4. Repairable Status (BCE Material Control):**

4.5.4.1. Develop and maintain a locally designed board/computer product to depict the status of repairables.

4.5.4.2. Include but do not necessarily limit reparable status to the following:

4.5.4.2.1. Nomenclature of the asset (P104 pump, fuel injectors, ect.)

4.5.4.2.2. BCE asset or SW/SG asset (include date received by BCE).

4.5.4.2.3. Responsible shop.

4.5.4.2.4. AFTO Form 350 (tag) number.

4.5.4.2.5. Status - Awaiting maintenance (AWM), Awaiting parts (AWP), ect. (If AWP, include estimated date of delivery (EDD)).

4.5.4.2.6. Delinquency.

4.5.4.2.7. Over 60 days old (determined by issue date to current date).

4.5.4.2.8. Total repairable in BCE, total delinquency period, and total over 60 days.

**4.5.5. Reconciliation (BCE Material Control).** Perform a monthly reconciliation with the BCE missile schedulers, and DIFM monitor on all repairables.

**4.5.6. Contract Operated Civil Engineering Supply Store (COCESS):**

4.5.6.1. Items purchased through COCESS will be charged to the purchasing organization.

4.5.6.2. If COCESS cannot meet the require delivery date on emergency RPIE work requirements, hand carry the supply request to base procurement for action in accordance with the COCESS contract. These provisions, in general terms, permit the government to reserve the right to procure items from other sources if the contractor cannot meet emergency time frames.

4.5.6.3. Process materials/parts required for installation of a low priority through COCESS.

4.5.6.4. Establish bench stock requirements IAW AFI32-1031.

4.5.6.5. Process items not in the COCESS contract or not eligible for COCESS support through base supply.

**4.5.7. Equipment Authorization Inventory Data (EAID):**

4.5.7.1. Remove RPIE items identified as EAID property from the RP records and ensure the RPIE items are identified in the appropriate RPIE account.

4.5.7.2. Establish equipment, tool, and vehicle requirements IAW AFMAN23-110.

**4.5.8. Facility Managers (FM) Self-Help Support.** Establish local procedures between the BCE and SW for performing minor maintenance/repair not justifying BCE dispatches.

**4.5.9. Application Codes X1 and X2.** The Minuteman/Peacekeeper weapon systems have been authorized by AFMC to be managed by the life of system support concept, as defined in AFMAN23-110. Equipment items applicable at bases should be identified with application codes X1 within the Standard Base Supply System as outlined in AFMAN23-110.

**Table 4.1. Non-Technical Training Requirements.**

| Training Block | Category of Personnel | Frequency of Training | Reference | OPR Trainer |
|---|---|---|---|---|
| 1. Missile Safety | Notes 1a, d, f and g | Notes 3 and 9 | AFI91-202 | Squadron Missile Safety Officer/ NCO or SW/SG Training |
| 2. Corrosion Control | Note 1a, b, f and g Note 2a, b, c, d | Note 3 | AFM 85-3 ACCR 400-3 | SW/SG/FTD Note 6 |

| | | | | |
|---|---|---|---|---|
| 3. Life Support Training (Cold Weather Orientation) | Note 5 | 1 Time | AFSPCI21-102 | Note 6 |
| 4. Maintenance Management | Notes 1a, b, c<br>Note 2 | Note 4 | AFSPCI32-1005 | Missile Engineer |
| 5. Maintenance Data Collection | Notes 1a, b, d, e, f, and g<br>Note 2 | Note 4 | TO 00-20 Series and AFSPCI32-1005 | Missile Scheduling |
| 6. Technical Data | Notes 1a, b, c, d, f, and g<br>CEM Librarians | Notes 4 and 8 | TO 00-5-1 and TO 00-5-2 | Note 6 |
| 7. LF/MAF Orientation and Weapon System Briefing | Notes 1a, b, d, e, f, and g<br>Note 2 | Note 4 | TO 21M-LGM30X-1 | Note 6 |
| 8. MEEDS | Individuals required to authenticate | As required | AFSPCI31-10101 | Note 6 |
| 9. Minuteman Hardness Awareness Training Film | Note 7 | Annual | AFSPCI32-1005 | Missile Engineer |

***NOTES:***

1. The following receives this nontechnical training:

Missile Schedulers

Material Control Section

3E0X1 and 3E0X2 dispatching personnel

3E1X1 dispatching personnel

3E2X1 dispatching personnel

3E3X1 dispatching personnel

3E4X1 and 3E4X3 dispatching personnel

2. The following supervisory personnel receives this training.

BCE and ABCE (optional)

Missile Engineer

Chief and Deputy, Operations Flight

Superintendents

Shop supervisors

3. Prior to initial dispatch to an LF/MAF and thereafter as prescribed by the applicable directive.

4. Initially within 90 days of assignment.

5. Cold weather orientation for missile support personnel at Malmstrom, Minot, Grand Forks and F. E. Warren Air Force Bases.

6. OPR trainers determined locally.

7. Missile engineers and technicians who perform field or shop maintenance on LF and MAF equipment.

8. Refresher training on posting and filing procedures. Annual requirement for those individuals that maintain individual files of CEMs and TOs.

9. Training is valid through the last day of the anniversary month. Personnel may dispatch through the end of the month per AFI91-202 (The US Air Force Mishap Prevention Program). Over-due personnel may NOT dispatch until the over-due training has been satisfactorily re-accomplished.

## Chapter 5

## CIVIL ENGINEERING MANUALS (CEM)

### 5.1. Civil Engineering Manuals (CEM) Program:

#### 5.1.1. Responsibilities:

5.1.1.1. AFSPC CEF develops and issues equipment manuals, system manuals, interim technical data (CEMICs, Supplements, IMCs, and ADPs) and Master Change Logs IAW AFI 37-160V1 (The Air Force Publications and Forms Management Programs -- Developing and Processing Publications), MIL-M-38313 (Manual, System Real Property Equipment, Preparation of), and MIL-M-38312 (Manual, Equipment, Real Property Install Equipment, Preparation of).

5.1.1.2. Security provisions of DODR 5200-1(Information Security Program) shall be observed during all phases of CEM preparation, development, processing and printing.

#### 5.1.2. Maintenance of CEM Libraries:

5.1.2.1. Maintain CEM libraries IAW with AFI37-161(Distribution Management) and this instruction.

5.1.2.2. AFSPC CEF maintains the master CEM library and processes, prints, and maintains CEMs and related publications.

#### 5.1.3. One-Time Technical Data:

5.1.3.1. The base missile engineer develops one-time technical data when mission requirements, not specifically covered in CEMs, do not warrant an official CEM change. Tasks requiring immediate accomplishment, affecting only one site or occurring one-time qualify and require the following:

5.1.3.1.1. Approval signatures of the SW/SG commander and the BCE or their designated representative.

5.1.3.1.2. Approval from AFSPC CEF when the procedure conflicts with existing procedures.

5.1.3.1.3. Forwarding a copy of the approved data to AFSPC CEF.

#### 5.1.4. Improvement Reports:

5.1.4.1. Limit CEM changes to those essential for weapon system reliability, safety, and protection of personnel and equipment. Do not make changes to CEMs to temporarily bypass system components. Use AFSPC Form 272 to initiate a CEM change request.

5.1.4.2. Use Improvement Reports to update modifications to missile facilities and equipment, descriptions and illustrations, replacement of equipment or components, improvements required for EWO procedures and safety of personnel/equipment. Also used to improve clarity or completeness of operation maintenance instructions and errors to existing data.

5.1.4.3. Initiate all CEM ICBM RPIE Improvement Reports affecting substitute equipment items.

5.1.4.3.1. If new vendor's/manufacturer's brochures are required for equipment manuals, procure one copy (unmarked originals only, suitable as master copies for reproduction) and submit as attachments.

5.1.4.3.2. The brochures must provide the following information, as applicable: (1) component specifications, (2) installation removal instructions, (3) operating instructions, (4) maintenance instructions, (to include checkout, troubleshooting, calibration, adjustment, servicing, lubrication, and inspection instruction.). (5) illustrated parts breakdown and parts list, and (6) associated electrical diagram/schematics and flow diagrams/schematics.

5.1.4.4. CEM improvements may be initiated by anyone.

5.1.4.5. Forward BCE initiated AFSPC Form 272 to the MW/MG for review and coordination. The SW/SG QA ensures the review and coordination of AFSPC Form 272 and returns it to the missile engineering flight within seven days of receipt.

5.1.4.6. CEM changes requiring use of special tools and equipment will be accompanied by sufficient information and supporting data.

5.1.4.7. Changes to the Facility Manager Manual (CEM 21-SM80-19) are reviewed and coordinated by SW/SG MAF management division.

5.1.4.8. AFSPC CEF will notify originator of approval/disapproval actions.

5.1.4.9. Include sufficient supporting data for changes to CEM 21-SM80-06 (Work Unit Code Manual).

**5.1.5. Emergency Improvement Reports:**

5.1.5.1. Submit emergency AFSPC Form 272 to initiate changes to CEMs to correct deficiencies which could result in fatal or serious injury to personnel, extensive damage/destruction of equipment, or inability to achieve/maintain operational capability by priority message. Include all supporting information normally included in AFSPC Form 272. Information copies are sent to HQ AFSPC/LGM (Maintenance Division), HQ AFSPC/DOGM (Missile Operations Branch), CEM 21-SM80-19 change only, HQ AFSPC/IGIRM (Maintenance Inspection Branch), 20 AF/LGMAL (Missile Maintenance TO Library/Technical Data Section). 20 AF/LGMAL forwards duplicate copies of AFTO Form 22 Technical Order System Publication Improvement Report and Reply on RPIE data in TOs to AFSPC CEF with comments/recommendations.

5.1.5.2. AFSPC CEF replies to emergency Improvement Reports using AFSPC Form 272-1, RPIE Improvement Report Reply within 48 hours. Initial reply will be by priority message followed by formal hard copy changes within 30 days. When conditions dictate a longer period than 30 days, AFSPC CEF will notify field units of expected distribution date. If emergency changes are also required on related CEMs/TOs, units will take immediate action to submit additional improvement reports.

5.1.5.3. The missile engineer reproduces and distributes copies of initial message replies to all account holders of the CEM. File the message change in front of the affected CEM and annotate the CEM change in the proper location.

5.1.5.4. AFSPC CEF notifies the originator of any disapproved AFSPC Frm 272 by letter or AFSPC form 272-1.

**5.1.6. Local CEMICs:**

5.1.6.1. Report CEM deficiencies using an AFSPC Form 272.

5.1.6.2. AFSPC CEF issues a CEMIC or control number to authorize the local publication of a CEMIC if the requested change is urgent.

5.1.6.3. CEMICs developed by the missile engineering flight will be in the same format as CEMICs developed by AFSPC CEF observing security provisions outlined in DODR 5200-1.

5.1.6.4. The MW/MG commander and the BCE are the final releasing authorities for local CEMICs.

5.1.6.5. Publish the CEMIC and the CEM Interim Change (CIC) page on green paper and post it facing the affected page.

5.1.6.6. Each page will have the CEMIC number, volume number (where applicable), date, and page number. The CEMIC number is a four-digit control number issued by AFSPC CEF. (Example: CEMIC 21-SM80B-2-21-3-5275)

5.1.6.7. Distribute copies of CEMICs to all the account holders of the affected CEM. Send three copies of each CEMIC to AFSPC CEF, one copy to AFSPC/DOGM (Current Operations Division), CEM 21-SM80-19 changes only and one copy to 20 AF/LGMAL.

5.1.6.8. File CIC page in front of the latest CEM Change Notice (CCN) page in the applicable CEM. CIC pages are filed in numerical order with the CIC pages containing the highest CEMIC four-digit control number filed on top. File interim change pages facing affected hard copy pages.

## 5.2. CEM Libraries:

### 5.2.1. Responsibilities:

5.2.1.1. Establish and maintain a CEM library and a limited file as a working library for use by the BCE operations flight.

5.2.1.2. Maintain library as two separate and distinct files and label for identification.

5.2.1.3. Collocated libraries need only maintain one set of applicable methods and procedures TOs, applicable management publications, and one set of AFTO Forms 110 (Technical Order Distribution Record).

5.2.1.4. AFSPC CEF issues and approves CEM pen and pencil entries.

5.2.1.5. CEM libraries must include (not applicable to working files in the shops, missile engineers, supply etc.):

5.2.1.5.1. Applicable CEMs, CEM changes, CEMICs, CEMIC changes, IMCs and supplements.

5.2.1.5.2. Applicable methods and procedures TOs (00 series).

5.2.1.5.3. TO 21M-LGM30F-12 and/or TO 21-LGM118A-12 (Special Maintenance, Safety and Electromagnetic Interference Provisions Safety Manual).

5.2.1.5.4. Applicable 21M-LGM30G-2-10-Series (Launch Facility and Support Building Procedures) and/or TO 21-LGM118A-2-10 (Launch Facility and Support Building Requirements).

5.2.1.5.5. Applicable weapon system TOs to include corrosion and calibration TOs and others as required and approved by the missile engineer.

5.2.1.5.6. AFSPCIND7 (Index of Civil Engineering Manuals (CEMs)).

5.2.1.5.7. AFSPCI32-1005, (ICBM Real Property/Real Property Installed Equipment Responsibilities).

5.2.1.5.8. AFMAN21-114, (Managing Intercontinental Ballistic Missiles Maintenance).

5.2.1.5.9. AFSPCI21-102 (ICBM Maintenance Management).

5.2.1.6. File CEM changes/supplements IAW procedures prescribed for TO changes in TO 00-5-2 (Technical Order Distribution System).

5.2.1.7. File the CEM Interim Change Notice (CICN) page in front of the latest CEM Change Notice (CCN) page. File CICN pages in numerical order with the CICN page containing the highest CEMIC four-digit control number (Block 4) filed on top. *Note:* CEMIC numbers may have cycled. i.e. consider 0017 higher than 7876 for posting purposes.

5.2.1.8. File Interim Message Changes (IMC) behind the CEM. File IMCs in numerical order with the latest IMC on top. Reference the IMC on the CICN page of the CEMIC or on the title page of the CEM MCL supplement and opposite each paragraph.

5.2.1.9. Maintain volumes of applicable 21-SM80-19 CEMs at each MAF.

**5.2.2. CEM Requisitions/Requirements:**

5.2.2.1. CEMs are X distribution publications.

5.2.2.2. Submit changes/requisitions/requirements to the X distribution list to AFSPC CEF.

**5.2.3. Improvement Reports:**

5.2.3.1. Receive, process, number, and control improvement reports for CEMs.

5.2.3.2. Maintain a master log containing the numerical control of AFSPC Form 272 and current status of these reports. Follow-up with MW/MG QA on improvement reports not returned within 7 duty days.

## Chapter 6

## FLOOD/SNOW CONTROL

### 6.1. Responsibilities (BCE):

6.1.1. Support SW/SG flood control plan.

6.1.2. Identify flood prevention actions in the in-service work plan.

### 6.2. Snow Control:

6.2.1. Use snow fences to minimize snow removal requirements and accumulations of site access roads.

6.2.2. Obtain landowner approval for installation of snow fences.

6.2.3. Preposition snow removal vehicles at the MAFs throughout the winter season to remove snow from missile sites and access roads.

6.2.4. Remove snow from the MAF areas as soon as possible after a storm to permit access to the site by operations, contractor, and maintenance personnel IAW the base snow removal plan.

6.2.5. Remove snow from the launch facility to provide access for maintenance/contractor personnel or security campers. *Note:* To avert damage, motorized snow equipment will not come within three feet of the IMPSS antenna. Snow within a three foot radius of the antenna will be removed by hand shovel.

6.2.6. SW/SG and BCE develops a local plan to familiarize snow removal equipment operators with launch facility topography. As a minimum include location of launcher closure door gear rack and tracks, IMPSS security antenna, sump pump discharge line, and diesel fuel tank fill pipe.

6.2.7. Notify SW/SG or BCE of site drainage problems (e.g. obstructed drainage culverts, heavily silted ditches, obstructed man-proof barriers, and ice/snow dams in ditches) and take corrective measures within their capability and refer any other requirements to the BCE for resolution.

## Chapter 7

## MISSILE ACCESS ROADS

### 7.1. Responsibilities:

7.1.1. Maintenance responsibility for public missile roads belongs to the agency that owns it (e.g. township, county, state).

7.1.2. Maintenance of roadways with Air Force funds is limited to gravel roads.

7.1.3. Report missile site road deficiencies to base missile engineering.

### 7.2. Extraordinary Maintenance (EM):

7.2.1. Select alternate missile routes and notify appropriate agencies whenever primary roads become impassable or unsafe.

7.2.2. Initiate EM requests if no alternate routes are available and the local agencies will not have the corrective action completed within an acceptable time frame.

### 7.3. Extraordinary Snow Removal (ESR):

7.3.1. Make arrangements for ESR if within 72 hours after termination of storm conditions, there is no indication that roads will be opened before the five-day time frame.

7.3.2. Request ESR at any time to ensure snow removal is accomplished within 24 hours after termination of snowfall for crew changeovers at MAFs and for priority 1 or 2 requirements that develop during the snowstorm. Priorities 1 and 2 are defined in **Table 7.1.**

7.3.3. Process ESR requests through the missile engineer.

7.3.4. Request sanding services only for convoy movements. Use ESR criteria for these services. ***NOTE:*** Snow removal on local roads is the responsibility of the owning agency. The counties normally do not plow roads where remote sites are located if residents have other means of access.

**Table 7.1. Priority Designators For Extraordinary Snow Removal.**

| PRIORITY | APPLICATION |
|---|---|
| 1 | Maintenance required to repair critical equipment essential for safe operation of the weapon system. |
| | Maintenance after an incident or malfunction to prevent further damage to the weapon system, avoid injury to personnel, or render the weapon system safe. |
| | To enable security forces to clear and re-secure/guard (e.g. camper) LFs displaying both outer and inner zone alarms that will not reset |
| 2 | Maintenance required to place LFs or MAFs (when three or less are operational in a squadron) on alert or return to alert. |
| | Maintenance required to retain or return communications system off-alert or impaired sorties to alert or unimpaired status. |
| | Maintenance required to retain or return sorties to EWO status. |

**7.4. TE Route Changes:**

7.4.1. Consider TE route changes if alternate routes are required in the place of designated routes.

7.4.2. Justify proposed changes to Military Traffic Management Command (MTMC) through AFSPC CEF/CEO, if any combination of the following apply:

7.4.2.1. Significantly shorter travel time identified.

7.4.2.2. Elimination of deficient or questionable bridges.

7.4.2.3. Improved or safer routes identified.

7.4.2.4. Former gravel road change to an all-weather surface.

7.4.2.5. Anticipated reduction in EM or ESR (including sanding).

7.4.3. Include economic and engineering justification to proposed routes that require upgrading.

7.4.4. Route changes shall be coordinated through all relevant local, county, state, and FWHA agencies prior to submission to AFSPC CEF/CEO. Coordination can be formal (written) or informal (telecon). ***NOTE:*** The expenditure of Air Force funds on public roads is legal only if MTMC certifies that the roads are important to national defense (Title 23, United States Code, Section 210a). Proposed routes that have all-weather paved surfaces must be capable of supporting axle loads without damage to the roadway. The system does not require an all-weather paved surface, and such routes are not eligible for route maintenance funds. Local government officials will be advised of this and recognize that the Air Force will not participate in resurfacing all-weather routes. If local government officials propose highway or paving projects which will result in a substantial savings to the Air Force, the Air Force may participate to the extent that necessary regraveling projects will not be required.

**7.5. Planning of Missile Movements:**

7.5.1. Review local missile movement plan prior to missile movement.

7.5.2. Prior to use of an approved access route, the maintenance wing/group commander and base missile engineer will confer and review pre-movement requirements. They will jointly determine whether an inspection of the route is required.

**7.6. Route Standards:**

7.6.1. Regravel inadequate routes with sufficient gravel and binder to assure satisfactory service for the next five years or more.

7.6.2. Provide a minimum 18-foot roadway.

7.6.3. Ensure a minimum turning radius of 60 feet is available for use by the transporter, Stage Transporter (ST), and Stage Emplacer (SE). Super elevation of curves and cross slope of roads will not exceed 10 percent.

7.6.4. Maintain a minimum four percent crown grade. Construct cut and fill sections as follows:

7.6.4.1. Fills over 6 feet 2:1

7.6.4.2. Fills less than 6 feet 4:1

7.6.4.3. Back slopes in cut 2:1

7.6.5. Maintain 12 percent maximum, 8 percent desired vertical guide.

7.6.6. Reduce both sides of a turn to less than eight percent for the road to be considered an acceptable transporter-erector (TE) route.

**7.7. Bridge Criteria.** Use **Table 7.2.** to determine adequacy of existing bridges on access roads to missile sites.

**Table 7.2. Bridge Operating Ratings and Span Length Limitations.**

| ITEM | SPAN LENGTH LIMITATIONS | MINIMUM OPERATING RATING |
|---|---|---|
| All Minuteman Transporter Erectors (TE) | Spans less than 16’ | H-10 |
| | Spans less than 25’ | H-12 |
| | All spans | H-15 or HS-20 |
| Payload I (136, 315 lbs GCVW) | Spans less than 70’ | H-15 |
| Payload II (140,487 lbs GCVW) | Spans less than 57’ | H-15 |
| Payload III (144,323 lbs GCVW) | Spans less than 54’ | H-15 |
| Peacekeeper Type II Stage Transporter (ST) | | |
| Stage I (219,000 lbs GCVW) | Spans less than 20’ | H-10 |
| | Spans less than 23’ | H-12 |
| | Spans less than 35’ | H-15 |
| | Spans less than 50’ | H-20 |
| | Spans less than 65’ | HS-15 |
| | All spans | HS-20 |
| Stage II (169,000 lbs GCVW) | Spans less than 29’ | H-10 |
| | Spans less than 39’ | H-12 |
| | Spans less than 54’ | H-15 |
| | All spans | HS-15 or HS-20 |
| Stage III 125,000 lbs GCVW) | All spans | H-10 |

***NOTE:***

Studies by the FHWA Bridge Division show that structures having a load capacity of H-20 or H-15 - S-12 are adequate for the TE and S.T. under all conditions. A vertical clearance of three inches, in excess of

the 13.5 feet for the TE, plus additional clearance usually allowed for compacted snow, should be obtained on vertical tangent. Consideration should also be given to vertical movements. When the vehicle operates over the crest of a vertical curve, the forward end of the missile container can rise to a maximum of one foot above its normal height of 13.5 feet. In a sag, the critical vertical dimension is that which would occur midway between the fifth wheel and the center axle of the three rear axles, and could exceed 13.5 feet by a few inches. When it is necessary to increase the vertical clearance at an existing structure, it should be increased to 14 feet provided this can be done without excessive cost. Vertical clearance at new structures should be 16 feet.

## Chapter 8

## MAINTENANCE OF MISSILE STRUCTURES AND GROUNDS

### 8.1. Responsibilities (BCE):

8.1.1. Manage missile site structures and grounds to maintain technical facilities and equipment as well as effective control of erosion and drainage.

8.1.2. Retain and maintain only those above ground structures that were specifically designed and constructed as integral and essential features of the missile facility.

### 8.2. Grounds:

8.2.1. Maintain missile site grounds within the security fence to a degree commensurate with the classification of semi-improved grounds, IAW AFI31-101 (The Air Force Physical Security Program), except where individual outleases prescribe other maintenance criteria.

8.2.2. Ensure vegetation within the fenced enclosure of the LF/MAF and sewage lagoons does not exceed a height of eight inches and ensure there is no vegetation growing on the service area. Herbicides should not be used immediately adjacent to the lagoons.

8.2.3. Maintain topography within the Improved Missile Physical Security System (IMPSS) surveillance area.

8.2.3.1. The configuration of the site fence/gate gaps should be IAW as-built drawings and IMPSS standard (e.g. any gaps should not exceed 2 inches).

8.2.4. Ensure vegetation on helipads does not exceed a height of eight inches.

8.2.5. BCE provides equipment and operators to support extensive excavation to support cable repair, modification, or relocation beyond the communications units capability.

8.2.6. The BCE or designated representative assists communication-electronics personnel in the final inspection and acceptance of contract work.

8.2.7. Accomplish vegetation control and clearance as necessary to facilitate cable repairs, ensure cable hardness, and prevent security compromise. *Note:* Land owners and tenants who construct fences across government right-of-way will be held responsible for providing reasonable access to the easement for patrolling and maintaining the cables.

### 8.3. Structures:

8.3.1. Use protective coatings in missile facilities IAW applicable instructions.

8.3.2. Install and maintain signs required by applicable instructions.

8.3.3. Provide site identification signs at each LF and MAF.

J. CARLTON TICKEL, Colonel, USAF
The Civil Engineer

## Attachment 1

## GLOSSARY OF REFERENCES , TERMS, ACRONYMS AND DEFINTIONS

***References***

**21-SM80-06,** Work Unit Code Manual

**21-SM80-18.** Maintenance Support Plan (RPIE)

**21-SM80-19,** Facility Manager Manual

**21-SM80-6,** Inspection Requirements

**AFI21-105,** Qualification of Welders

**AFI21-114,** Managing Intercontinental Ballistic Missiles Maintenance

**AFI31-101,** The Air Force Physical Security Program

**AFI32-1005,** ICBM Real Property/Real Property Installed Equipment Responsibilities

**AFI32-1031,** Operations Management

**AFI36-2201,** Enlisted Specialty Training

**AFI37-160V1,** The Air Force Publications and Forms Management Programs -- Developing and Processing Publications

**AFI37-161,** Distribution Management

**AFI38-401,** The Air Force Suggestion Program

**AFI91-101,** Air Force Nuclear Weapons Surety Program

**AFI91-202,** The US Air Force Mishap Prevention Program

**AFM 85-3,** Paints and Protective Coatings

**AFMAN23-110,** USAF Supply Manual

**AFPD37-1,** Air Force Information Management

**AFI36-807,** Weekly and Daily Scheduling of Work and Holiday Observances

**AFSPCI21-102,** ICBM Maintenance Management

**AFSPCI31-10101,** ICBM System Security Standards

**AFSPCIND7,** Index of Civil Engineering Manuals (CEMs)

**DODR 5200-1,** Information Security Program

**MIL-M-38312,** Manual, Equipment, Real Property Install Equipment, Preparation of

**MIL-M-38313,** Manual, System Real Property Equipment, Preparation of

**MIL-S-1595A,** Test, Aircraft, and Missile Welding Operators Qualification

**TO 00-20-2,** The Maintenance Data Collection System

**TO 00-5-1,** AF Technical Order System

**TO 00-5-2,** Technical Order Distribution System

**TO 00-20-2-5,** On Equipment Maintenance Documentation of Intercontinental Ballistic Missiles

**TO 21M-LGM118A-12,** Special Maintenance, Safety and Electromagnetic Interference Provisions Safety Manual

**TO 21M-LGM118A-2-10,** Launch Facility and Support Building Requirements

**TO 21M-LGM30F-12,** Safety Manual, Special Maint Safety and Electromagnetic Interference Provisions VAFB and all Wings

**TO 21M-LGM30F/G-2-10-1,** Launch Facility and Support Building Procedures

**TO 21M-LGM30X-1,** Description, Minuteman WPN Sys Description (Wings III and V integrated program)

**TO 33D9-61-76-1,** Expanded Missile Data Analysis System

***Acronyms and Definitions***

**ABCE** - Assistant Base Civil Engineer

**ADP** - Advance Data Package

**ADV** - Advertise

**AFI** - Air Force Instruction

**AFLC** - Air Force Logistics Command

**AFSPC** - Air Force Space Command

**AFSPCI -** Air Force Space Command Instruction

**AFTO -** Air Force Technical Order

**ATA** - Actual Time Accounting

**AWM** - Awaiting Maintenance

**AWP** - Awaiting Parts

**BCE -** Base Civil Engineer

**BOD** - Bid Opening Date

**CAC** - Cost Account Codes

**CCN** - CEM Change Notice

**CE** - Civil Engineering

**CEC** - Central Engineering Control

**CEF** - Civil Engineer Flight

**CEM** - Civil Engineering Manuals

**CEMIC** - Civil Engineering Manual Interim Change

**CFAR**- Configuration, Failure and Repair

**CIC** - CEMIC Interim Change

**CICN** - CEM Interim Change Notice

**COCESS** - Contract Operated Civil Engineering Supply Store

**CSI** - Construction, Surveillance and Inspection

**DDP** - Delay Due to Parts

**DIFM** - Due In From Maintenance

**DMCCC** - Deputy Missile Combat Crew Commander

**EAID** - Equipment Authorization Inventory Data

**EDD** - Estimated Date of Delivery

**EM** - Extraordinary Maintenance

**EMDAS** - Expanded Missile Data Analysis System

**EPA -** Environmental Protection Agency

**ESR** - Extraordinary Snow Removal

**EWO -** Emergency War Order

**FC** - Functional Code

**FCIR** - Facility Change Initiation Request

**FEAT** - Facility Engineering Analysis Test

**FHWA** - Federal Highway Administration

**FM** - Facility Manager

**FTD** - Field Training Detachment

**GCVW** - Gross Commercial Vehicle Weight

**HICS** - Hardened Intersite Cable System

**HQ** - Headquarters

**I & O** - Intermediate and Organizational

**IAW** - In Accordance With

**ICBM** - Intercontinental Ballistic Missile

**IMC** - Interim Message Change

**IMMP** - Improved Maintenance Management Program

**IMPSS** - Improved Missile Physical Security System

**LF** - Launch Facility

**LORI** - Local Operational Readiness Inspection

**MAF** - Missile Alert Facility

**MCCC** - Missile Combat Crew Commander

**MCLs** - Master Change Logs

**MDC** - Maintenance Data Collection

**MEEDS** - Missile Electronic Encryption Device System

**MFAP** - Missile Facility Alteration Panel

**MG** - Missile Group

**MO** - Manpower Office

**MTMC** - Military Traffic Management Command

**MW** - Missile Wing

**NAF** - Numbered Air Force

**NCO** - Non-Commissioned Officer

**OPR** - Office of Primary Responsibility

**ORI** - Operational Readiness Inspection

**PCMS** - Project by Contract Management System

**PE** - Program Element

**PMT** - Periodic Maintenance Team

**QA** - Quality Assurance

**RP** - Real Property

**RPIE** - Real Property Installed Equipment

**RTA** - Ready To Advertise

**SE** - Stage Emplacer

**SE** - Support Equipment

**ST** - Stage Transporter

**SW** - Space Wing

**TCTO** - Time Compliance Technical Order

**TE** - Transporter Erector

**TO** - Technical Order

**TRN** - Turnaround

**WIMS** - Worldwide Information Management System

**WO** - Work Order

**WOMF** - Work Order Master File

*Terms*

**Advanced Data Packages (ADPs)—**ADPs provide support for operation and maintenance of components and subsystems during modification programs, during evaluation of authorized suitable substitute items, and to provide specialized technical data coverage for maintenance tasks. These documents consist of federal data or commercial vendor data and may contain such information as operation, repair, maintenance instructions, and parts lists. ADPs may also consist of existing hard copy CEM pages which have required changes incorporated with pen, pencil, and typed matter entries.

**Central Engineering Control (CEC)—**The purpose of CEC is for control of facility configuration to ensure system operation, security, safety, and survivability.

**Civil Engineering Manuals (CEMs)—**The official medium for disseminating technical information, instructions, and safety procedures to personnel assigned to the organizations responsible for the operation and maintenance of RP/RPIE weapon system equipment.

**Civil Engineering Manual Interim Change (CEMIC)—**Maintenance instructions in CEMs that are available during modification programs while awaiting formal publication of approved changes. Typically, CEMICs are used when lack of data or existing data could result in injury to personnel or damage to equipment. CEMICs may be published locally after coordination with AFSPC CEF.

**Construction, Surveillance, and Inspection (CSI)—**Process by which life extension projects are monitored at ICBM facilities.

**Contracts—**A life extension contract is an AFSPC CEF or base generated project that is beyond the organic repair capability of the base missile engineering function.

**Equipment Manuals—**Equipment manuals are bound, numbered volumes of commercial and federal data pertaining to end items of equipment and individual components.

**Expanded Missile Data Analysis System (EMDAS)/Improved Maintenance—Management Program (IMMP)** - A weapon system computer system used to schedule and track Missile workorders. EMDAS/IMMP work orders will be used in civil engineering to record maintenance actions involving one-time BCE assists, 21-SM80-6 inspections, maintenance actions taken to support 21-SM80-6 inspections, MCL/FEAT work, codeable and noncodeable equipment repair.

**Extraordinary Maintenance (EM)—**Maintenance requested by Air Force and performed by local agencies on a certified missile transporter gravel route in excess of that required for normal public travel. Alternate route systems are not eligible for EM unless the primary route cannot be used at the time of the transporter movement. The EM program enables base missile engineering to correct day-to-day discrepancies that would otherwise interrupt high priority or emergency operations. It provides for emergency repairs which cannot wait for scheduled maintenance to be performed by the owning agency.

**Extraordinary Snow Removal (ESR—)** - A contract established through the FHWA to assist local agencies through use of supplemental resources. The ESR program is used to ensure the security of the facility, prevent extensive equipment damage, reduce off alert time, and to protect the health and safety of Air Force personnel.

**Facility Change Initiation Request (FCIR)—**An FCIR is used to propose a modification to missile RP/ RPIE. An AFSPC Form 286, Facility Change Initiation Request is used to initiate an FCIR.

**Facility Engineering Analysis Test (FEAT)—**A FEAT is performed to test and verify a proposed change to the configuration controlled portion of RP/RPIE. FEATs will originate from FCIRs,

suggestions, or need for suitable substitutes. An AFSPC Form 287 will be used to submit a FEAT.

**Master Change Log (MCL)—**Instructions for accomplishing modifications to Central Engineering Controlled (CEC) equipment. MCLs are published by AFSPC CEF. MCLs are numbered and contain supply data and modification instructions. The last four digits of the MCL coincide with the MCL control number assigned by AFSPC CEF.

**Improved Missile Physical Security System (IMPSS)—**Security system at ICBM launch facilities.

**Interim Technical Data—**Interim technical data is used to operate and maintain systems or equipment during modifications programs.

**Interim Message Change (IMC)—**Amend CEMICs and CEM MCL supplements in emergency situations when time or circumstance do not permit issuance of formal changes.

**Supplements—**Augment or change data in CEMs that are not adaptable to the inclusion of individual change pages.

**System Manuals—**System manuals are bound, numbered volumes of technical data pertaining to operation and maintenance of entire systems.